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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,561	02/13/2002	Bryan Franz Dufner	C-2199Re	3207

7590 02/04/2004

M P Williams  
210 Main Street  
Manchester, CT 06040

EXAMINER

VALENTINE, DONALD R

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 02/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/075,561

Applicant(s)

DUFNER ET AL.

Examiner

Donald R. Valentine

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 and 17-19 is/are allowed.
- 6) ☒ Claim(s) 15, 16, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11/03/03. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Reiser '909.

The reference shows a fuel cell comprising an anode support plate, a cathode support plate and a membrane electrode assembly disposed between the anode and cathode "support plates", the membrane electrode assembly comprising an ion exchange membrane assembly (col. 3, lines 20-25) which is being considered to be equivalent to a polymer electrolyte membrane. There are "support plates" comprising hydrophilic plate assemblies with pores therein (col. 3, lines 45-60). There is a "water transport plate" adjacent to the hydrophilic "substrate layer" and there is passage for said coolant stream and a passages for a reactant gas stream.

There is means for creating a pressure differential between the reactant gas stream and the coolant stream such that the pressure of the reactant gas stream is higher than the pressure of said coolant stream.

(See col. 2, lines 27-53; col. 3, lines 20-68; and col. 4, lines 1-25 and lines 45-67).

3. Claims 15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Reiser '595.

The reference shows a fuel cell comprising an anode support plate, a cathode support plate and a membrane electrode assembly disposed between the anode and cathode "support plates", the membrane electrode assembly comprising an ion exchange membrane assembly (col. 3, lines 15-24), which is being considered to be equivalent to a polymer electrolyte membrane. There are "support plates" comprising hydrophilic plate assemblies with pores therein (col. 3, lines 40-60). There is a "water transport plate" adjacent to the hydrophilic "substrate layer" and there is passage for said coolant stream and a passages for a reactant gas stream. There is means for creating a pressure differential between the reactant gas stream and the coolant stream such that the pressure of the reactant gas stream is higher than the pressure of said coolant stream.

(See col. 2, lines 24-59; col. 3, lines 15-67; and col. 4, lines 1-55).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Reimer '909 or Reimer '595 as applied to claims 15 and 20 above, and further in view of Meyer et al.

Both of Reimer '909 and '595 provide the means and method for creating a pressure differential between a reactant gas stream and a

coolant stream such that the pressure of the reactant gas stream is higher than the pressure of the coolant stream. The references do not set forth any numeric value for the pressure differential.

Meyer et al show creating a pressure differential, which is between 2-3 psig (pounds per square inch gauge) said differential having a higher gas pressure for the gas than the coolant stream. (See col. 2, lines 35-50).

It would be considered within the skill of the art to determine the appropriate pressure range or pressure differential for application to either of the fuel cell assemblies of the primary references because the secondary reference teaches the advantages of maintaining the reactant gas pressure higher than the coolant pressure in order to insure that the coolant water is moved away from the surface of the membrane and prevent reactant gases from penetrating the pores in the plates.

***Allowable Subject Matter***

7. Claims 17-19 are allowed.
8. The following is a statement of reasons for the indication of allowable subject matter: The references of record do not show or suggest a fuel cell comprising a membrane electrode assembly disposed between anode and cathode support plates, the membrane electrode assembly comprising a


polymer electrolyte membrane, at least one support plate with a hydrophilic substrate layer with pores therein, a water transport plate adjacent the hydrophilic plate, the transport plate with passageways for each of a coolant stream and a reactant gas stream and at least one said support plate comprising a partially hydrophobic bilayer disposed between the hydrophilic substrate and the membrane electrode assembly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald R. Valentine whose telephone number is 571-272-1250. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1222.

A handwritten signature in black ink, appearing to read "Donald R. Valentine". The signature is fluid and cursive, with the first name "Donald" and last name "Valentine" clearly distinguishable.

Donald R. Valentine  
Primary Examiner  
Art Unit 1742

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January 29, 2004